

REMARKS

Claims 1-3 are pending in the application. Claims 1 and 2 are rejected. Claim 3 is objected to but would be allowable if placed into independent form. Claims 1 and 2 are amended in order to overcome rejections based on indefinite language. Claim 3 is amended to place it into independent form.

Claim Rejections – 35 USC 112

Claims 1-3 are rejected under 35 USC 112, second paragraph, as being indefinite. This rejection is traversed for at least the following reasons.

The Examiner notes that the term “extreme” in claim 1 is a relative term that renders the claim indefinite. The term “extreme” in claim 1 is a translation error. As the prior application is a Chinese application, the specification is translated from Chinese to English. The term “extreme” intends to refer to the outer spectrum of UV light with the shortest wavelength within the UV band. It is known also as UV-C band with the wavelength of 253.7nm.

Applicant submits that one skilled in the art reading the specification would understand the meaning of even the mistranslation, since “extreme” would be understood to be the outer limits of a band, and in this case a band that provides known cleansing capabilities. Applicants have recited “outer spectrum” in the claims.

Claim 2 is rejected under 35 USC 112, second paragraph, as being indefinite. This rejection is traversed for at least the following reasons.

The Examiner notes that the phrase “the front and the rear shield wall” in claim 2 uses structure without any antecedent basis, thereby rendering the claim indefinite. This rejection is traversed for at least the following reasons.

Applicant has amended the claim by changing the words “the” to “a” in order to provide a proper antecedent basis.

Claim Rejections – 35 USC 103

Claim 1 is rejected under 35 USC 103 as being unpatentable over Yuen et al (GB 2301179A) in view of Taylor et al (6,911,186). This rejection is traversed for at least the following reasons.

As a preliminary matter, Applicant notes that the present invention involves an air collecting device 25 that comprises the air collecting walls (marked 26 in the specification). The air collecting walls 26 are disposed on both sides of the air collecting device 25. The air collecting walls 26 will direct the airflow close to the UV-tube (marked 21 in the specification). This ensures the air is passed through must flow within a short distance of the outer spectrum UV-tube 21. Therefore the airflow is evenly exposed under the UV-light and fully sterilized by the UV-light.

Yuen et al

The Examiner provides at pages 3 and 4 of the Office Action a comparison between the structure in the air purifier of Yuen et al, particularly as illustrated in Figs. 2 and 3, and the structure in claim 1. In particular, the Examiner points to an ultraviolet ray tube 32 disposed at the center of the air collecting device, a cathode high voltage discharge fiber thread 40 fixed to the center of the front surface of an air exhaust gridiron 14, and a draft fan 36. The Examiner notes other structural features that are the same. The Examiner admits that the main body of Yuen et al is not circular in shape. Moreover, Yuen et al fails to disclose how to shield the UV-light source from being started by user.

In particular, Yuen et al provides no special feature to ensure the airflow must be sterilized by the UV-emitter 32. Besides, the blockage of UV-light is done by the pyramidal cover 24. Yuen also fails to disclose a structure that ensuring the airflow must effectively sterilized by the UV-light. It also fails to disclose a structure to block the UV-light from being viewed by the user.

Taylor et al

The Examiner looks to Taylor et al (Figs. 2A and 4) for a teaching of a body and accompanying structures for an air purifier where there is a source of ultraviolet radiation in the path of air flow and where the body is cylindrical. The Examiner asserts that it would have been obvious to modify Yuen et al to have a cylindrical shape on the basis of the teachings of Taylor et al.

Taylor et al discloses an air transporter and conditioner device which does not have any fan. The airflow is driven by electro-kinetic force. The electro-electric force is generated by a pair of electrodes. With such device, the airflow is very weak. Since, as shown in Fig 5A of the patent, there is no special design to ensure that the air must pass through the UV-tube 290, some of the air may be passed the UV-tube without being exposed under the UV-light for enough time. This sharply reduces the sterilization level of the air.

Also, there is a high voltage across the pair of electrodes. The first electrode (positive electrode) will generate ions, which will be attracted to the second electrode (negative electrode). The movement of the ions carries with the ions air molecules, thus electro-kinetically producing an outflow of ionized air. The pair of electrodes will generate ions, however, a large portion of the generated ions will be reabsorbed by the electrodes. The pair of electrodes also works as an electro-precipitator which attracts charged particulate matter or dust to be adhered electrostatically on the surface of the second electrode. Besides, as the first electrode is a positive electrode, the ions produced are also positive but not negative charged.

In the claimed invention and in Yuen et al, the airflow is driven by a fan. The airflow is much stronger. Besides, there is no electro-precipitator in Applicant's invention. Also, there are no electrodes which are oppositely charged. The negative ions are generated by a high voltage carbon fibre. They will not be absorbed by positive charged electrode.

Clearly, Taylor et al and Yuen et al are incompatible and there is no teaching or suggestion for their combination, without the use of hindsight.

Moreover, with respect to the present invention, the stripe-like gridirons 24 that are part of the collecting device 25 and comprise parallel structures that guide the moving air to around the ultraviolet transmitting tube and toward the exhaust gridiron, as illustrated in Fig. 2 and described at page 7 of the specification are not taught in either reference. This permits the air to move effectively on both sides of the air collecting device 25 and then proceed to the air input ports 27 disposed between the tube 21 and the air collecting walls.

Applicant has amended the claims to specify use of a stripe-like gridirons for directing air flow for optimal purification and the use of a structure to protect the user against UV light..

Claim 2 is rejected under 35 USC 103 as being unpatentable over Yuen et al (GB 2301179A) in view of Taylor et al (6,911,186) and further in view of Hak (6,494,940). This rejection is traversed for at least the following reasons.

Claim 2 depends from claim 1 and adds the feature of a shield wall that prevents ultraviolet rays from radiating outside of the device. The Examiner admits that such feature is not taught in the combination of Yuen et al and Taylor et al, and looks to Hak for a teaching of this added structure.

Hak

In this prior art reference, there is no ion generator to produce negative ions to the outlet air. Also, the fan in Hak is upstream of the UV-light source. The UV-light source is surrounded by a light chamber to block the UV-light, and is positioned in between the fan and air outlet.

In Hak, the cross-sectional area of the light chamber is larger than the cross-sectional area of the opening (34). This prior art applies a Bernoulli effect, so that the airflow in the light chamber is significantly reduced. Moreover, as the UV-light source (86) is not disposed at the center of the light chamber, some air may be closer to the light source and some may be further from the light source. Finally, it is possible that some air may escape from the light chamber before fully sterilized if the air is far from the light source.

Amendment Under 37 C.F.R. § 1.111
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However, in the present invention, the UV-light source is positioned in between the air filter and the fan. As the fan in our application is much closer to the air outlet, the airflow of the outlet air is much stronger.. Clearly, this distinguishes over the prior art..

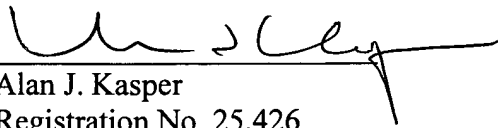
Allowable Subject Matter

Claim 3 is allowable if placed into independent form. Applicant has amended the claim to make it independent and secure its allowability.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

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